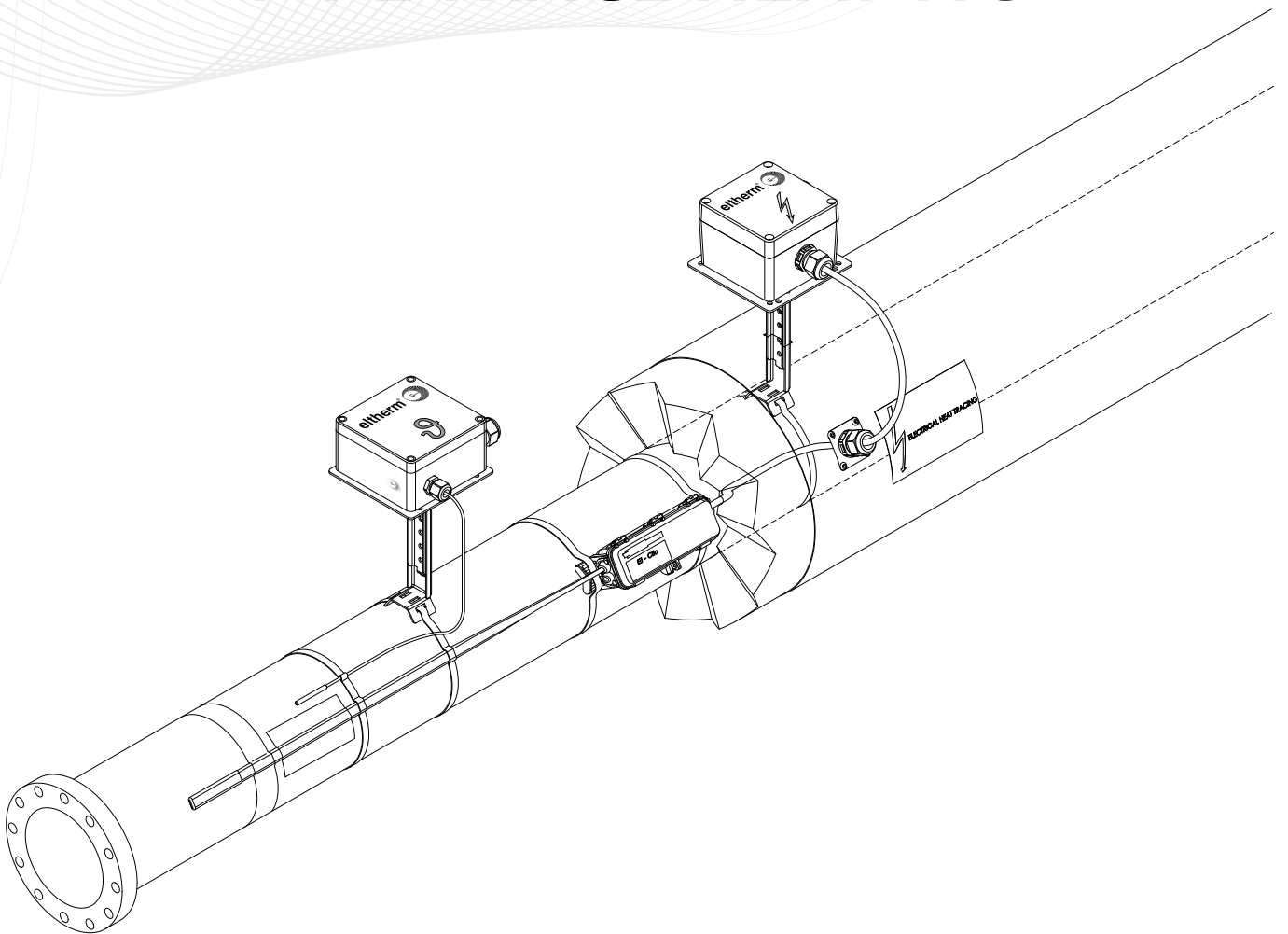


INSTALLATION MANUAL

ELECTRICAL PIPE TRACE HEATING



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BU 131

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ATTENTION

Refers to a potentially dangerous situation.
If it is not prevented, there is a risk of damage or malfunction.

DANGER

Refers to an extremely dangerous situation.
If it is not prevented there is risk of death or at least a high risk of serious injuries.

NOTE

Important information and instructions for safe, effective and environmentally compatible usage.

WARNING

Refers to a dangerous situation.
If it is not prevented there is risk of injury or at least a high risk of material damage.

Proviso

We reserve the right to make technical changes. Changes, errors or misprints shall not form the basis for any claim to compensation for damages. Comply with the applicable and currently valid standards and regulations for safety-related components and systems.

eltherm GmbH Ernst-Heinkel-Str. 6-10 57299 Burbach P.: +49 2736 4413-0 F.: +49 2736 4413-50 info@eltherm.com	Document: BU 131 (864301MONROH)		Mounting Guide for Electrical Pipe Trace Heating	
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	Revision: 0			Date:

INTRODUCTION

GENERAL INFORMATION

This manual is intended for fitters of electrical trace heating systems and is valid for installations in both Ex and non-Ex areas. It is oriented to the applicable international standards for installation and maintenance (including EN 60079-14 and EN 60079-30-2). The manual describes the most common mounting methods for the following eltherm trace heating systems

- **ELSR** (self-regulating heating cables)
- **ELP** (parallel heating cables with constant power)
- **ELKM** (plastic-insulated serial heating cables)
- **ELK-MI** (mineral-insulated heating cables) on heat-insulated pipelines.

The validity of information for the use of heating cables is identified by the following symbols:

ELSR

ELP

ELKM

ELK-MI

If information does not apply, the corresponding symbol appears in grey

Different installation methods are possible, but not all variants from the large number of methods can be taken into consideration in this manual. Please note that the manuals for specific products as well as product-related instructions and guidelines always take precedence over the instructions in this manual.

WARRANTY



ATTENTION

To fulfil the conditions for the warranty, the instructions from the respective product manuals must be followed.

This manual only provides information about general and standard installation methods and accordingly no claim to warranty can be derived from it.



DANGER

The parameters listed in the test certificate as well as any special conditions cited must be strictly observed.

SAFETY INSTRUCTIONS



ATTENTION

- Mounting, testing and maintenance of electrical trace heating systems may only be carried out by qualified employees who have been trained to deal with Ex equipment and also as general electrical fitters.
- Strict compliance with the applicable safety requirements in areas subject to explosion hazard is a precondition for the safety of persons, systems and devices.
- The persons tasked with planning, installation and maintenance have a special responsibility and must be familiar with the exact details of the applicable regulations.



DANGER

- Improper mounting or damage to the electrical trace heating can lead to a danger of short circuit and fire while the system is in operation.
- To ensure safe and error-free operation of eltherm electrical trace heating, only the original initial and medial connecting sets and termination sets specially developed and tested for this purpose may be used.

INCOMING GOODS

- Compare the delivered goods with the purchase order and the delivery slip.
- Inspect the heating cable and components for transport damage.
- Carry out all measurements required for the respective materials (insulation measurement on the heating cables, etc.).

STORAGE

- Store the delivered goods in a clean and dry place.
- Observe the storage temperature of the delivered goods.
- For specifications regarding storage temperature, refer to the delivery documents or the product data sheets.
- Make certain the goods are stored so they will be protected against mechanical damage.
- While the goods are in storage, avoid contact with chemicals (solvents, petrochemical products, etc.).
- If measured lengths of the heating cable have to be removed from storage, the end of the remaining heating cable must be protected effectively against penetration of moisture (for example by attaching an original end connection of the heating cable manufacturer).

MOUNTING

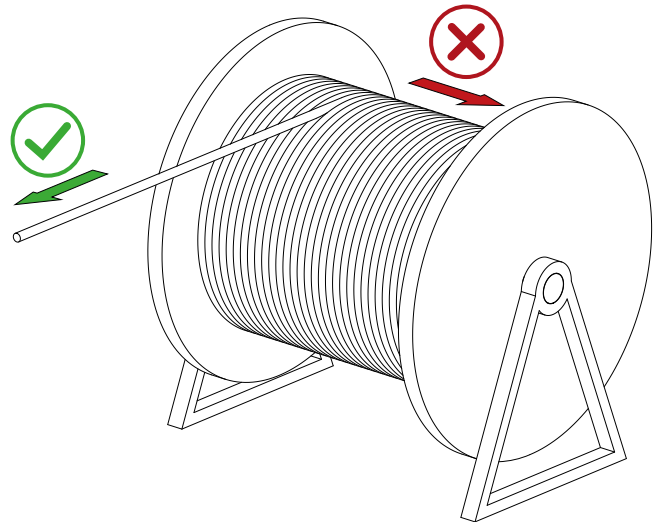
PREPARATION FOR MOUNTING

ATTENTION

- Make certain that all mounting work is complete on the pipe system that will be heated.
- All pressure and material tests as well as coating and painting work on the pipelines must be completed. The coat of paint on the pipes must feel dry to the touch.
- Check the nature of the pipe surface. It must not have any sharp edges or burrs that could cause damage during installation. If necessary remove any or cover them with suitable material.
- Compare the design of the pipeline (dimensions, structure, nature and number of inserts) with the design data.
- Check all materials required for heating to ensure they are complete and for any transport damage.
- Compare the material list of the delivered components with the design documents.
- Check whether there are any special mounting instructions and whether all the necessary material and tools are on hand.
- Measure the electrical and the insulation resistance of the heating cable and write them down in the mounting protocols provided for this purpose. Compare the value with the data in the design documents and technical specifications of the heating cables.

Unrolling the heating cable

1. **ELSR** **ELP** **ELKM** **ELK-MI**

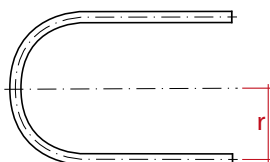


- Use a sturdy holder to unroll the heating cable.
- Make certain the flushing device runs smoothly to prevent damage to the heating cable due to excessive tensile stress.
- Unroll the heating cable straight over the edge of the drum, not off to the side.

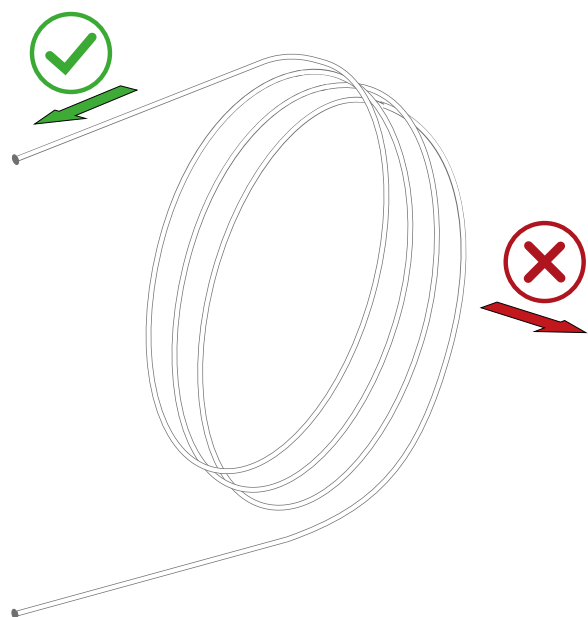
MOUNTING THE HEATING CABLE

WARNING

- The requirements from the heating cable operating instructions must be observed without exception.
- Do not crush the heating cable or pull it over sharp edges.
- Always avoid walking on or driving over the heating cable.
- Never use the heating cable as a loop to step on.
- Maintain the lengths designated in the project planning at the inserts.
- The specified minimum bending radii must always be observed.



2. **ELSR** **ELP** **ELKM** **ELK-MI**



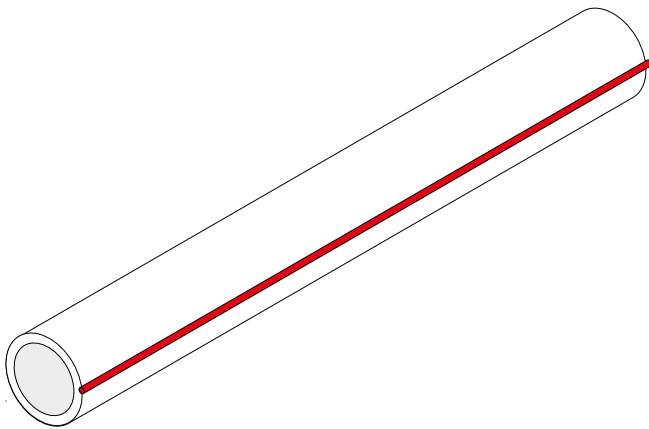
Laying the heating cable

3. ELSR ELP ELKM ELK-MI

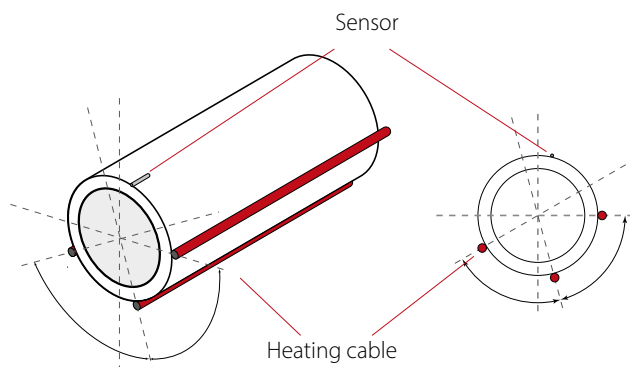
DANGER

- Fixed resistance heating cables must not touch, overlap or cross each other. This would lead to local overheating and a danger of fire.
- When laying a heating cable, always observe the minimum distance between heating cables.

4. ELSR ELP ELKM ELK-MI



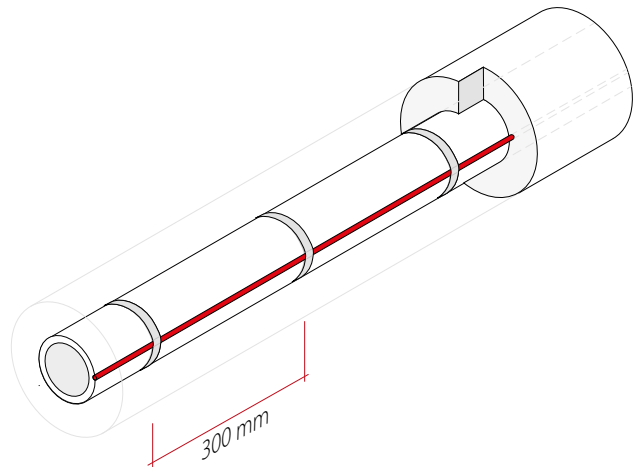
- Normally the heating cable is laid stretched out along the pipe. Lay heating cables in a spiral pattern only if the project planning explicitly calls for it.



- Do not lay the heating cable on the lowest point of the horizontal pipeline.
- Laying the heating cable on the top half of a horizontal pipeline is unfavourable for reasons of heat distribution and should only be done if the project planning calls for it.

Fastening the heating cable onto the pipe

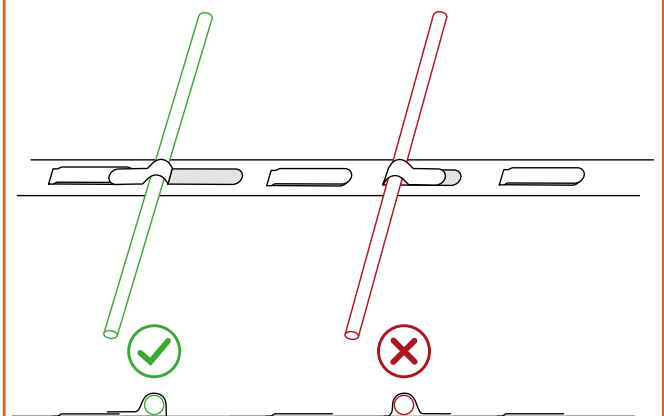
5. ELSR ELP ELKM ELK-MI



- Fasten the heating cable at intervals of 300 mm.
- Use only fastening materials that have been defined as suitable accessories by the manufacturer and that were selected in the design documents.
- Make certain that the selected materials meet the requirements (for temperature, mechanical and chemical resistance).
- Check whether the use of other elements (such as aluminium adhesive tape for better heat transfer) is required in the design documents.

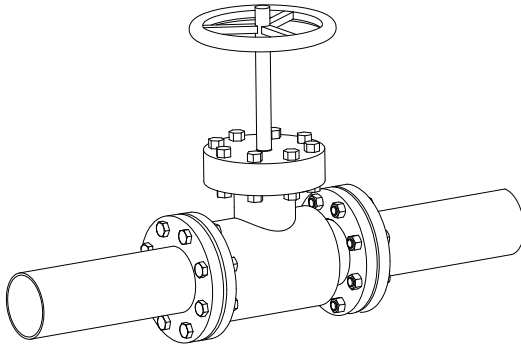
WARNING

- Never use metal clips or binding wire for fastening as doing so could cause the heating cable to be damaged.
- Heating cables must be able to move slightly in the fastenings (for expansion and contraction).
- When using a pre-stamped stainless steel band, note that a burr is produced inside the tab due to punching. Follow the installation instructions in the drawing below. This is the only way to ensure that the burr cannot damage the heating cable.



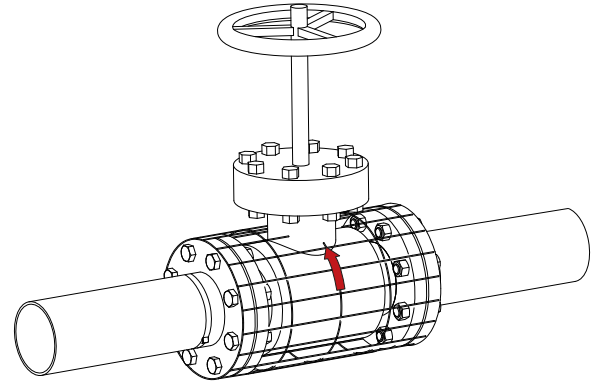
Fastening the heating cable onto metal braiding

6. ELSR ELP ELKM ELK-MI

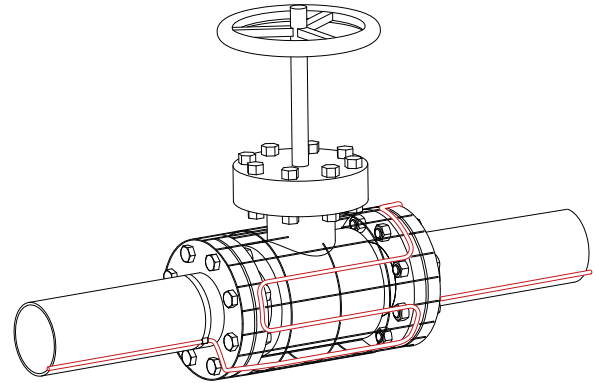


A special mounting variant consists of fastening the heating cable onto metal braiding. This variant is used mainly for heating geometrically complex shapes.

This variant is also used if fittings (such as valves and pumps) have to be heated and easy access to the fittings is especially important (for maintenance purposes, etc.). This ensures that the metal braiding will be easy to open and close again without having to remove the heating cable first.



2 Fasten the braiding onto the fitting



3 Fasten the heating cable onto the braiding

ATTENTION

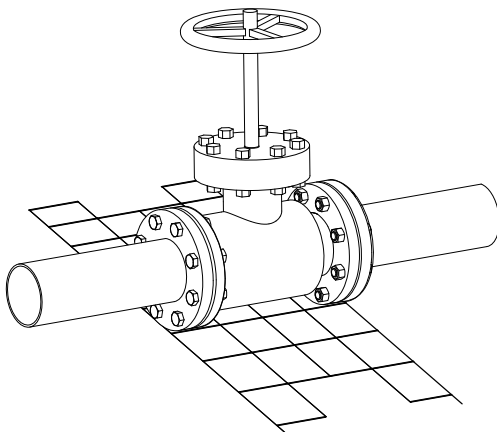
- Make certain the metal braiding has the best possible contact with the surface of the fitting.
- Use only cable ties or adhesive tape to fasten the heating cable to the metal braiding and follow the recommendations for fastening. Do not use binding wire or anything of that nature.

ATTENTION

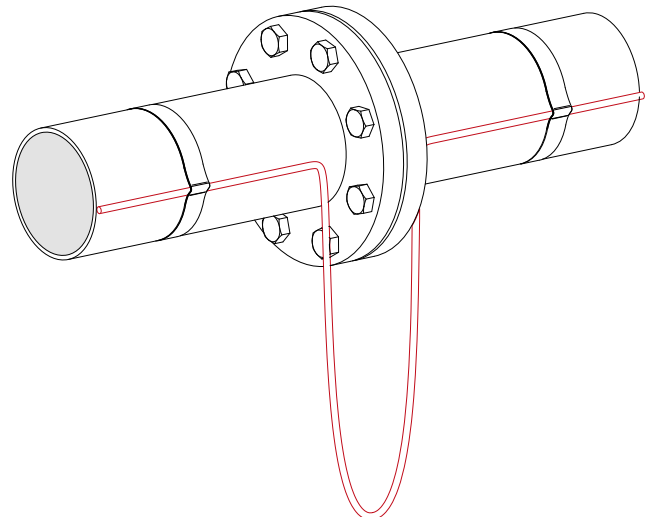
- Observe the specified length allowances in project planning or design (for example in eltherm Designer).

7. ELSR ELP ELKM ELK-MI

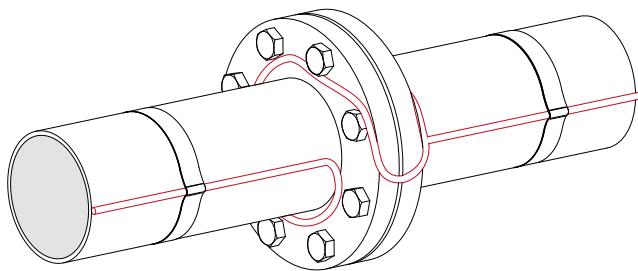
Length allowance on flanges



1 Cut the braid to size so that it fits exactly



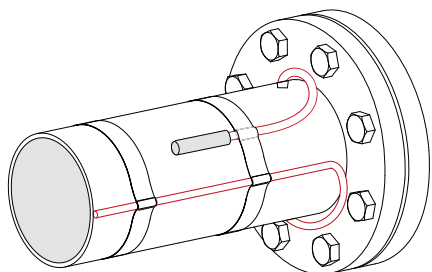
1 Length allowance for laying loose



2 Fastening cable onto flange

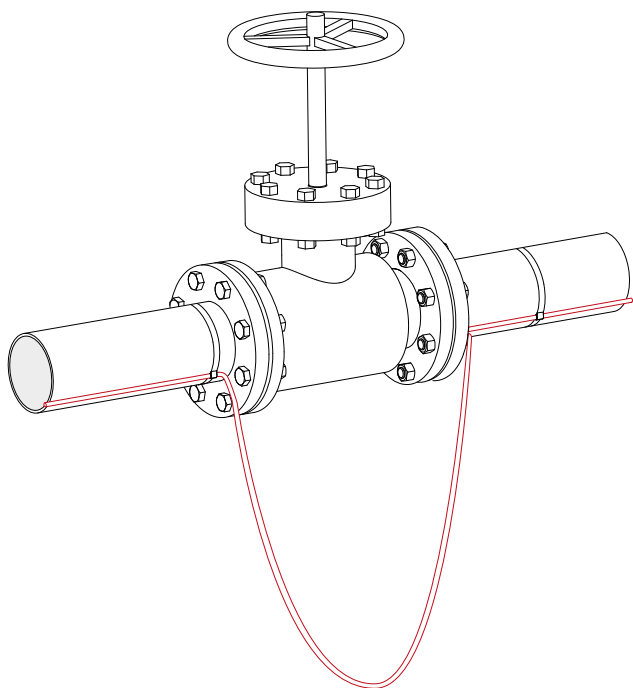
8. ELSR ELP ELKM ELK-MI

Length allowance on blind flanges

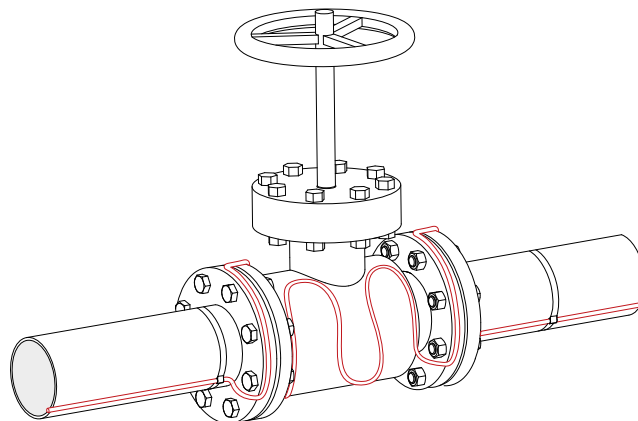


9. ELSR ELP ELKM ELK-MI

Length allowance on valves



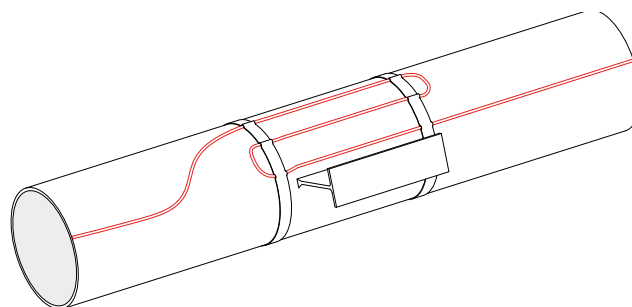
1 Length allowance for laying loose



2 Fastening cable onto valve

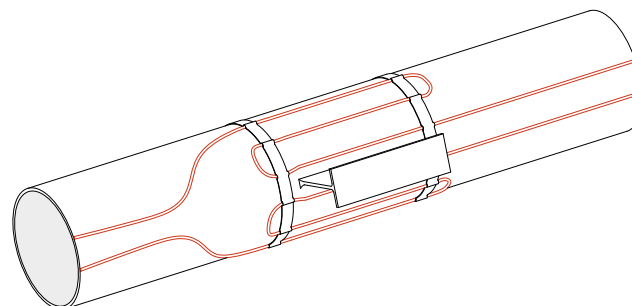
10. ELSR ELP ELKM ELK-MI

Length allowance on pipe supports / bearing surfaces



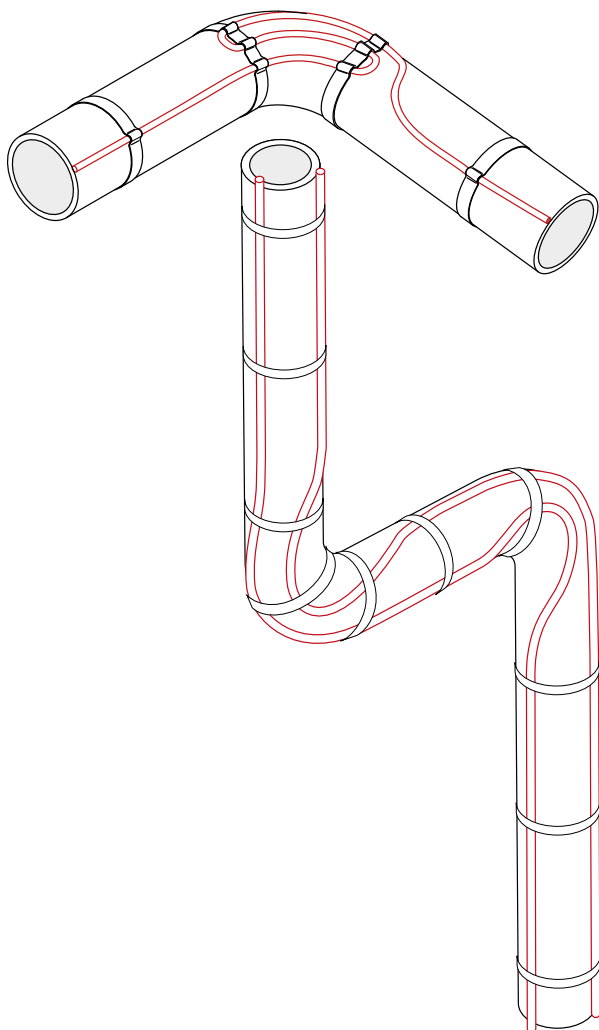
11. ELSR ELP ELKM ELK-MI

Length allowance on pipe supports / bearing surfaces



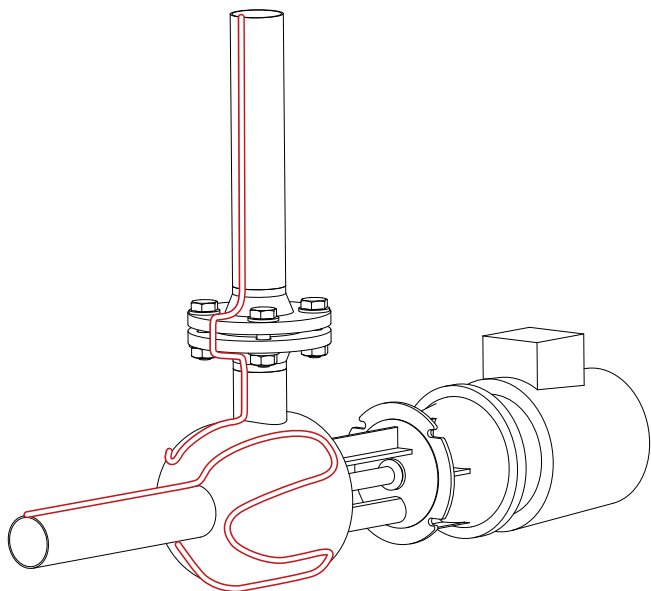
12. **ELSR** **ELP** **ELKM** **ELK-MI**

Length allowance on bends



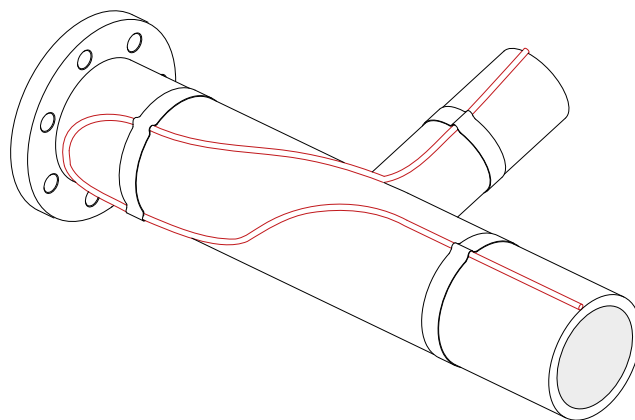
13. **ELSR** **ELP** **ELKM** **ELK-MI**

Length allowance on pumps



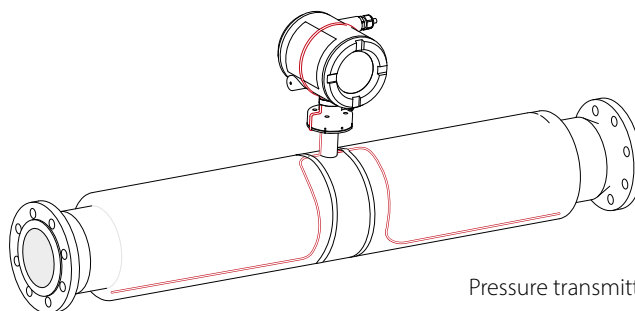
14. **ELSR** **ELP** **ELKM** **ELK-MI**

Length allowance on branches / T pieces

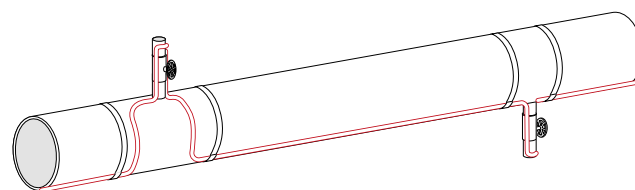


15. **ELSR** **ELP** **ELKM** **ELK-MI**

Length allowance on fittings



Pressure transmitter



Analytic cables



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<https://eltherm.com/downloads>

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